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S/N 09/800,413



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hacker et al.	Examiner:	M.O. Savage
Serial No.:	09/800,413	Group Art Unit:	1723
Filed:	03/06/2001	Docket No.:	758.924US01
Title:	LIQUID FILTER HAVING INTERCHANGEABLE SPIN-ON CANISTER FILTER AND FILTER CARTRIDGE, AND METHODS		

CERTIFICATE UNDER 37 CFR 1.10:

"Express Mail" mailing label number: EV 347838444 US  
Date of Deposit: December 2, 2003

I hereby certify that this paper or fee is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Mail Stop Appeal Brief, ,  
Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

By: Teresa Anderson  
Name: Teresa Anderson

APPELLANT'S BRIEF ON APPEAL

**23552**

PATENT TRADEMARK OFFICE

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Brief is presented in support of the Appeal filed September 2, 2003, from the final rejection of Claims 19 - 21 and 24 of the above-identified application, as set forth in the Office Action mailed March 6, 2003.

A check for \$330.00 to cover the required fee for filing this Brief is enclosed. An original and two copies of the Brief are enclosed herewith.

### **I. REAL PARTY OF INTEREST**

The Real Party of Interest is Donaldson Company, Inc., Minneapolis, Minnesota, the assignee of this patent application.

### **II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences for the above-referenced patent application.

### **III. STATUS OF CLAIMS**

Claims 19-24 are pending and are the subject of this Appeal (Appendix 1, Claims).

Claims 22 and 23 were withdrawn by the Examiner as being directed to an unelected species.

Each of claims 19, 20, 21, and 24 is currently rejected.

The rejection of each of claims 19, 20, 21, and 24 is appealed.

There are no claims allowed. There are no other claims pending.

### **IV. STATUS OF AMENDMENTS**

The procedural history of the final rejections can be understood from the following chronological recitation:

1. Application filed March 6, 2001; claims 1 - 20.
2. Restriction Requirement Office Action mailed March 13, 2002. Under 35 U.S.C. § 121 Applicant was required to elect a single disclosed species.

3. Election and Preliminary Amendment filed June 10, 2002; claims 1 - 18 were canceled; new claims 21 - 25 added.
4. Office Action mailed September 24, 2002. Examiner withdrew claims 22 and 23 as being directed to a non-elected invention; Examiner rejected claims 19 - 21, 24, and 25 under 35 U.S.C. § 103(a).
5. Amendment and Response was filed December 23, 2002; claim 19 was amended; claim 25 was canceled.
6. Final Rejection Office Action was mailed March 6, 2003; Examiner rejected claims 19, 20, 21 and 24 under 35 U.S.C. § 112, first paragraph, and 35 U.S.C. § 103(a) .
7. Notice of Appeal was filed September 2, 2003.
8. Amendment under 37 C.F.R. § 116 filed concurrently herewith; it is unknown whether the Examiner will enter the amendment.

## **V. SUMMARY OF THE INVENTION**

In the art of filters for lubrication systems, fuel systems, and hydraulic systems, there are two standard types of filters used. One type is a spin-on canister filter, while the other is a bowl-cartridge filter. In a nutshell, Applicants' invention allows for the use of both a spin-on canister filter and a bowl-cartridge filter interchangeably upon the same filter head and without the need for special adaptors or modifications to the filter head.

Spin-on canister filters are disposable units, which typically include a single-use housing holding a permanently mounted, non-replaceable filter element (cartridge filter). The canister holding the cartridge filter is spun onto a filter head by threaded engagement. The liquid to be cleaned passes from the filter head and into the housing for filtering. The cleaned liquid exits the

housing and re-enters the filter head. After some period of use, the spin-on canister filter is removed from the filter head and is discarded. A new spin-on canister filter is then mounted onto the filter head. Example embodiments of a spin-on canister filter are shown in Applicants' FIG. 3 at reference numeral 46; FIG. 7 at reference numeral 192; FIG. 9 at reference numeral 210; FIG. 13 at reference numeral 250; FIG. 15 at reference numeral 270; and FIG. 19 at reference numeral 210.

Bowl-cartridge filters typically include a re-useable bowl holding a replaceable filter element (cartridge filter). Bowl-cartridge filters are sometimes used instead of spin-on canister filters due to disposal or other issues. Bowl-cartridge filters are also mounted onto a filter head, wherein the liquid to be cleaned passes through the filter head, into the bowl, through the replaceable cartridge filter, outside of the bowl, and back into the filter head. After a period of use, the bowl-cartridge filter is removed from the filter head, and the replaceable cartridge filter is removed from the re-useable bowl. The old cartridge filter is discarded, and replaced with a new cartridge filter. The new cartridge filter is operably mounted into the re-useable bowl, to provide a refurbished bowl-cartridge filter. This refurbished bowl-cartridge filter, containing the new cartridge filter, is then mounted onto the filter head. Example embodiments of a bowl-cartridge filter are shown in Applicants' disclosure at FIG. 1 at reference numeral 48; FIG. 5 at reference numeral 162; FIG. 11 at reference numeral 222; and FIG. 17 at reference numeral 162.

Prior to Applicants' invention, there has never been a single filter head that could be used interchangeably with either a spin-on canister filter and a bowl-cartridge filter, without the use of any special tools or adaptor structure. It is noted that in the prior art, there may have been the use of adaptors in order to configure a filter head to change from one type of filter to another type of filter. Applicants' invention does not need any modifications, tools, or adaptor structure

in order to permit the interchangeability. The exact same structure of the filter head can be used for either the spin-on canister filter or the bowl-cartridge filter. An example is shown in FIGS. 1-4. The filter head is shown at reference numeral 44. In FIG. 2, the filter head 44 is shown used with a bowl-cartridge filter. In FIG. 4, the filter head 44 is shown used with a spin-on canister filter.

The sole independent claim on appeal is provided below with reference numerals to show an example embodiment.

19. A liquid filter assembly (40) comprising:

- (a) a filter head (44); said filter head having a center tube (68, FIGS. 2 & 4), an outer tube (60, FIGS. 1 & 3), a first liquid flow port (64), and a second liquid flow port (66); said outer tube (60) circumscribing said center tube (68);
  - (i) said outer tube (60) defining an end (61), an outer tube end port (63) at said end, and an outer tube flow passageway (65) extending between and in fluid communication with said first liquid flow port (64) and said outer tube end port (63);
    - (A) said outer tube (60) further including an outer tube threaded region (76);
  - (ii) said center tube (68) defining a center tube flow passageway (71) and a center tube end port (69); said center tube flow passageway (71) extending between and in fluid communication with said center tube end port (69) and said second liquid flow port (66);
    - (A) said center tube (68) projecting outwardly from said end (61) of said outer tube (60);
- (b) one of a spin-on canister filter (46, FIGS. 3 & 4) and a bowl-cartridge filter (48, FIGS. 1 & 2) operably connected to said filter head (44); said filter head (44) being capable of receiving, separately, both a spin-on canister filter (46) and a

bowl-cartridge filter (48); said one having a *single piece*<sup>1</sup> housing (54 in FIGS. 1 & 2; 50 in FIGS. 3 & 4) defining an interior (92 in FIG. 1; 128 in FIG. 4) and a cartridge filter (56 in FIG. 1; 130 in FIG. 4) operably oriented within said housing interior (92, 128); said cartridge filter (56, 130) including a region of filter media (109 in FIGS. 1 & 2; 134 in FIG. 4) and a non-removable inner liner (112 in FIG. 2; 140 in FIG. 4);

(i) said filter (46, 48) having a filter threaded region (102 in FIGS. 1 & 2; 126 in FIGS. 3 & 4) threadably engaged to said outer tube threaded region (76) to define a threaded connection (103 in FIG. 2; 125 in FIG. 4);

(A) said threaded connection (103, 125) having a cross-sectional thickness no greater than 10 mm (p. 8, lines 20-21; p. 10, lines 13-15);

(ii) said filter (46, 48) being in liquid flow communication with said outer tube end port (63) and said center tube end port (69);

(c) a first seal arrangement (117 in FIG. 2; 145 in FIG. 4); said first seal arrangement oriented to form a first seal (118 in FIG. 2; 145 in FIG. 4) to inhibit leakage between said outer tube flow passageway (65) and said filter (46, 48); and

(d) a second seal arrangement (114 in FIG. 2; 144 in FIG. 4); said second seal arrangement oriented to form a second seal (116 in FIG. 2; 146 in FIG. 4) to inhibit leakage between said center tube flow passageway (71) and said filter (46, 48).

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<sup>1</sup> It is noted that claim 19 was amended under Rule 116 to remove the language "single piece" before "housing" in order to reduce the number of issues on appeal; the final office action indicated that "single piece" introduce new matter. As the Examiner has not acted on that amendment at the time this brief is submitted, the "single piece" language is still in the claim for this example.

## **VI. ISSUES PRESENTED FOR REVIEW**

1. Whether claims 19, 20, and 24 contain new matter as prohibited by 35 U.S.C. § 112, first paragraph.
2. Whether claims 19-21 and 24 are unpatentable under 35 U.S.C. § 103 over Austrian patent 236,421 in view of U.S. Pat. No. 5,584,987 to Mules and U.S. Pat. No. 5,695,636 to Gullett.

## **VII. GROUPING OF CLAIMS**

The rejected claims do not stand or fall together. It is submitted that each of the claims has its own independent reasons for patentability. These are discussed in the argument section.

## **VIII. ARGUMENT**

1. **Whether Claims 19, 20, and 24 contain new matter as prohibited by 35 U.S.C. § 112, First Paragraph**

Claims 19, 20, and 24 were rejected under § 112, first paragraph, for containing new matter. In particular, the Examiner indicated that the language "single piece" in front of the word "housing" was new matter.

To simplify the issues on appeal, Applicants filed an Amendment Under Rule 116 requesting that this language be deleted. Upon entry of the Amendment, this issue should be removed from the appeal.



In the event of non-entry of the Amendment, it is pointed out that the drawings show several single piece housings. For example, see housing 50 in FIG. 3; housing 128 in FIG. 6; housing 194 in FIG. 8; housing 212 in FIG. 9; and housing 240 in FIG. 12.

The test for new matter is whether a person skilled in the art would have recognized that the inventor showed possession of the invention at the time of filing. In establishing a disclosure, Applicants may rely not only upon the specification as filed, but also on the drawings. See MPEP § 608.04. Further, "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter." MPEP § 2163.06. It is respectfully submitted that the drawings show a single piece housing. This is apparent from both the cross-sectional views and the perspective views. Applicants had possession of the claimed invention at the time of filing. Applicants request reversal of this new matter rejection.

**2. Whether Claims 19 - 21 and 24 are unpatentable under 35 U.S.C. § 103 over Austrian Patent 236,421 in view of U.S. Patent No. 5,584,987 to Mules and U.S. Patent No. 5,695,636 to Gullett**

Errors in the rejection:

1. Claim 19 requires detailed structure about the geometry of the filter head, for example: the center tube defining a center tube flow passageway (71, for example) extending between and in fluid communication with the center tube end port (69, for example) and the second liquid flow port (66, for example).

The Examiner applied an unfair reading of the filter head language to the Austrian patent.

In the Office Action, the Examiner said that the Austrian patent discloses:

a filter head 1 having a center tube (e.g., defining port 3) defining an end, an outer tube (e.g., carrying seal 16 [sic 6]), a first liquid flow port 2, a second liquid flow port 3, the outer tube circumscribing the

center tube, the outer tube defining an end, an outer tube end port at the end at the end, an outer tube flow passageway extending between and in fluid communication with the first liquid flow port 2, the center tube defining a center tube flow passageway and a center tube end port, the center tube flow passageway extending between and in fluid communication with the second liquid flow port 3, . . . .

The Examiner has taken the same structure shown in the Austrian patent and has asserted that this same structure corresponds to different and separate limitations in the claim. For example, the center tube is interpreted as the structure defining port 3; the second liquid flow port is defined as port 3; the center tube flow passageway is interpreted as extending between and in fluid communication with the second liquid flow port 3. The Austrian patent cannot be fairly interpreted to disclose that the center tube flow passageway (shown at 3) extends between and is in fluid communication with the second liquid flow port, which is also reference numeral 3. The Austrian patent does not disclose these limitations as claimed. Applicants request reversal of the rejection for at least this reason.

2. Claim 19 requires that the filter head (44 for example) is capable of receiving, separately, both a spin-on canister filter (46 for example) and a bowl-cartridge filter (48 for example).

The Austrian patent does not disclose or suggest this limitation. *The Examiner has not addressed this limitation at all.* The Austrian patent shows a single type of filter connected to the structure 1. (The structure 1 in the Austrian patent is what the Examiner is referring to as the filter head.)

The law requires that each limitation in the claim must be either disclosed or suggested by the prior art. This limitation is not disclosed or suggested by the prior art. Applicants request reversal of the rejection for at least this reason.

3. Claim 19 requires the filter (for example 46, 48) to have a threaded region (for example 102, 126) threadably engage the outer tube threaded region (for example 76) to define a threaded connection (for example 103 and 125). The threaded connection is required to have a cross-sectional thickness not greater than 10 mm.

As admitted in the Office Action, the Austrian patent does not disclose a threaded region on the outer tube of the structure considered by the Examiner to be the filter head; and does not disclose a threaded region on the filter connected to the outer tube of the filter head. Instead, there is a bayonet and pin type of connection shown in the Austrian patent. The filter head in the Austrian patent does not have threads along the outer wall, and does not have threads on the filter.

The Examiner relied upon U.S. Patent No. 5,584,987 (Mules '987) for providing evidence of obviousness. In particular, the Examiner stated that the Mules '987 patent disclosed that a bayonet connection and a threaded connection between the outer surface of an outer tube of a filter head and the inner surface of a filter are known alternatives.

Applicants agree that the disclosure in Mules '987 states that in the filter system described by Mules that the threadings could be reversed or "a bayonet fixing may be provided or an external clamp ring or clips may be adopted if desired." Although that disclosure may apply to variations in Mules '987, it is believed that the disclosure in Mules '987 is of no assistance in the structure shown in the Austrian patent. The structures and arrangements shown in the Austrian patent are quite different from the structures and arrangements shown in Mules '987. A person of ordinary skill would not have had the motivation to have modified the structure 1 in the Austrian patent by eliminating the bayonet connection between structure 1 and structure 4 and substituting a threaded connection. Mules '987 does not disclose how this would

have been done. A fair reading of the Mules '987 patent would have been of no assistance to a person of ordinary skill in changing the structure of the filter shown in the Austrian patent.

4. Claim 19 requires that the threaded connection has a cross-sectional thickness no greater than 10 mm.

As can be seen in the drawings, this relatively thin, cross-sectional thickness permits a greater flow capacity between the filter head and the filter. The Examiner admits that the Austrian patent does not show a threaded connection and does not show a threaded connection having a cross-sectional thickness no greater than 10 mm.

The Office Action admits that the Austrian patent as modified by Mules '987 does not disclose a threaded connection having a cross-sectional thickness of no greater than 10 mm. The Examiner then relies upon U.S. Patent No. 5,695,636 to Gullett for his evidence of obviousness. In particular, the Examiner points to the connection 22 having a cross-sectional wall thickness of no greater than 10 mm.

Applicants respectfully submit that the disclosure in Gullett is of no use to the combination of the Austrian patent and the Mules patent. The connection 22 shown by the Gullett patent is between two housing pieces (not between a housing and a filter head). This can be seen in Gullett FIG. 1, with housing piece 20 and housing piece (or "top plate assembly") 30. The threaded connection between two housing pieces does not provide any teaching, suggestion, motivation, or disclosure for a connection between a filter and a filter head. The disclosure in Gullett '636 does not show how the relatively thin cross-sectional thickness can result in a particularly preferred filter head with particularly preferred flow channels.

Gullett and the other art of record provide no disclosure or motivation for completely reconfiguring the shape of the structure 1 in the Austrian patent to have a cross-sectional

thickness at a threaded connection between a filter head and a housing to be no greater than 10 mm.

In summary, the references relied upon by the Examiner (the Austrian patent, Mules '987, and Gullett '636) do not suggest the claimed invention. As pointed out above, none of the references discloses a filter head that is capable of receiving separately, both a spin-on canister filter and a bowl-cartridge filter. At least because this claimed limitation is absent from each of the references, it cannot result from a combination of these references. Further, as pointed out above, claim 19 requires that the filter head have a center tube flow passageway extending between and in fluid communication with the center tube end port and the second liquid flow port. None of the references, individually, discloses such a limitation; thus, a combination of these references cannot disclose this limitation. In addition, none of the references discloses the limitation that the threaded connection between the filter housing and the filter head has a cross-sectional thickness no greater than 10 mm. At least because none of the references individually discloses this limitation, the references taken as a whole cannot disclose or suggest the limitation either.

None of the art cited by the Examiner gets to the point of the invention: a single filter head that can be used interchangeably with either a spin-on canister filter and a bowl-cartridge filter, without the use of any special tools or adaptor structure.

For at least these reasons, Applicants respectfully request that the rejection of claim 19 be reversed.

The rejection of claim 20 should be reversed. Claim 20 depends upon and further limits claim 19. Claim 20 requires that the filter comprises a bowl-cartridge filter, with a reuseable housing and a cartridge filter selectively replaceable within the housing. For at least the same

reasons that claim 19 is not disclosed or suggested by the Austrian patent, Mules '987, and Gullett '636, Applicants respectfully submit that claim 20 is also not disclosed or suggested by these references.

Applicants request that the rejection of claim 21 be reversed. Claim 21 requires that the filter threaded region be on an interior portion of the housing and the outer tube threaded region be on an exterior portion of the outer tube. For at least the same reasons that claim 19 is allowable, Applicants respectfully submit that claim 21 is allowable.

Applicants request the reversal of the rejection of claim 24. Claim 24 requires that the cartridge filter is a cylinder of pleated filter media defining an open filter interior, and the center tube extends into the open filter interior. For at least the same reasons that claim 19 is allowable, Applicants respectfully submit that claim 24 is allowable.

With respect to claims 22 and 23 that were withdrawn by the Examiner, it is noted that these claims relate to the filter being a spin-on canister filter. The Examiner both: (i) ignored the limitation in claim 19 that the filter head is capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter; and (ii) asserted that dependent claims 22 and 23 are separate and distinct species.

### **SUMMARY**

It is earnestly requested that the Examiner's rejection be reversed, and that all of the pending claims be allowed.


Please charge any additional fees or credit overpayment to Merchant & Gould Deposit

Account No. 13-2725.

Respectfully submitted,

MERCHANT & GOULD P.C.  
P.O. Box 2903  
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Date: 12-02-03

  
Julie R. Daulton  
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## **APPENDIX 1**

### **THE CLAIMS ON APPEAL (as finally amended)**

19. A liquid filter assembly comprising:

- (a) a filter head; said filter head having a center tube, an outer tube, a first liquid flow port, and a second liquid flow port; said outer tube circumscribing said center tube;
  - (i) said outer tube defining an end, an outer tube end port at said end, and an outer tube flow passageway extending between and in fluid communication with said first liquid flow port and said outer tube end port;
    - (A) said outer tube further including an outer tube threaded region;
  - (ii) said center tube defining a center tube flow passageway and a center tube end port; said center tube flow passageway extending between and in fluid communication with said center tube end port and said second liquid flow port;
    - (A) said center tube projecting outwardly from said end of said outer tube;
- (b) one of a spin-on canister filter and a bowl-cartridge filter operably connected to said filter head; said filter head being capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter; said one having a single piece housing defining an interior and a cartridge filter operably oriented within said housing interior; said cartridge filter including a region of filter media and a non-removable inner liner;
  - (i) said filter having a filter threaded region threadably engaged to said outer tube threaded region to define a threaded connection;
    - (A) said threaded connection having a cross-sectional thickness no greater than 10 mm;



- (ii) said filter being in liquid flow communication with said outer tube end port and said center tube end port;
- (c) a first seal arrangement; said first seal arrangement oriented to form a first seal to inhibit leakage between said outer tube flow passageway and said filter; and
- (d) a second seal arrangement; said second seal arrangement oriented to form a second seal to inhibit leakage between said center tube flow passageway and said filter.

20. A liquid filter assembly according to claim 19 wherein:

- (a) said filter comprises a bowl-cartridge filter;
  - (i) said housing being re-usable; and
  - (ii) said cartridge filter being selectively replaceable within said housing.

21. A liquid filter assembly according to claim 19 wherein:

- (a) said filter threaded region is on an interior portion of said housing; and
- (b) said outer tube threaded region is on an exterior portion of said outer tube.

22. (Withdrawn) A liquid filter assembly according to claim 19 wherein:

- (a) said filter comprises a spin-on canister filter;
  - (i) said housing being single-use; and
  - (ii) said cartridge filter being permanently, and non-replaceably mounted within said housing.

23. (Withdrawn) A liquid filter assembly according to claim 22 wherein:

- (a) said filter threaded region is on a baffle plate; and
- (b) said outer tube threaded region is on an exterior portion of said outer tube.

24. A liquid filter assembly according to claim 19 wherein:

- (a) said cartridge filter includes a cylinder of pleated filter media defining an open filter interior;

- (i) said center tube extending into said open filter interior.

## **APPENDIX 2**

### **OFFICE ACTIONS AND AMENDMENTS/RESPONSES**

- A. Amendment under Rule 116 mailed December 2, 2003
- B. Final Office Action mailed March 6, 2003
- C. Amendment mailed December 23, 2002
- D. Office Action mailed September 24, 2002
- E. Election and Preliminary Amendment mailed June 10, 2002
- F. Restriction Requirement mailed March 13, 2002

RESPONSE UNDER 37 C.F.R. 1.116  
EXPEDITED PROCEDURE  
EXAMINING GROUP 1723

S/N 09/800,413

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hacker et al.	Examiner:	M.O. Savage
Serial No.:	09/800,413	Group Art Unit:	1723
Filed:	03/06/2001	Docket No.:	758.924US01
Title:	LIQUID FILTER HAVING INTERCHANGEABLE SPIN-ON CANISTER FILTER AND FILTER CARTRIDGE, AND METHODS <sup>9</sup>		

CERTIFICATE UNDER 37 CFR 1.10:

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Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

By:

Name: Teresa Anderson

AMENDMENT UNDER 37 C.F.R. § 1.116

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed March 6, 2003, please amend the applications as follows:

Amendments to the claims begin on page 2.

Remarks/Arguments begin on page 5.

### **Amendments to the Claims:**

Claims 1 - 18, and 25 are canceled. Claims 22 and 23 are withdrawn. Claims 19, 20, 21, and 24 are pending.

### **Listing of the Claims:**

Claims 1 - 18 (Previously canceled)

19. (Currently Amended) A liquid filter assembly comprising:

- (a) a filter head; said filter head having a center tube, an outer tube, a first liquid flow port, and a second liquid flow port; said outer tube circumscribing said center tube;
  - (i) said outer tube defining an end, an outer tube end port at said end, and an outer tube flow passageway extending between and in fluid communication with said first liquid flow port and said outer tube end port;
    - (A) said outer tube further including an outer tube threaded region;
  - (ii) said center tube defining a center tube flow passageway and a center tube end port; said center tube flow passageway extending between and in fluid communication with said center tube end port and said second liquid flow port;
    - (A) said center tube projecting outwardly from said end of said outer tube;
- (b) one of a spin-on canister filter and a bowl-cartridge filter operably connected to said filter head; said filter head being capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter; said one having a ~~single piece~~ housing defining an interior and a cartridge filter operably oriented within said housing interior; said cartridge filter including a region of filter media and a non-removable inner liner;
  - (i) said filter having a filter threaded region threadably engaged to said outer tube threaded region to define a threaded connection;

- (A) said threaded connection having a cross-sectional thickness no greater than 10 mm;
- (ii) said filter being in liquid flow communication with said outer tube end port and said center tube end port;
- (c) a first seal arrangement; said first seal arrangement oriented to form a first seal to inhibit leakage between said outer tube flow passageway and said filter; and
- (d) a second seal arrangement; said second seal arrangement oriented to form a second seal to inhibit leakage between said center tube flow passageway and said filter.

20. (Previously Presented) A liquid filter assembly according to claim 19 wherein:

- (a) said filter comprises a bowl-cartridge filter;
  - (i) said housing being re-usable; and
  - (ii) said cartridge filter being selectively replaceable within said housing.

21. (Previously Presented) A liquid filter assembly according to claim 19 wherein:

- (a) said filter threaded region is on an interior portion of said housing; and
- (b) said outer tube threaded region is on an exterior portion of said outer tube.

22. (Withdrawn) A liquid filter assembly according to claim 19 wherein:

- (a) said filter comprises a spin-on canister filter;
  - (i) said housing being single-use; and
  - (ii) said cartridge filter being permanently, and non-replaceably mounted within said housing.

23. (Withdrawn) A liquid filter assembly according to claim 22 wherein:

- (a) said filter threaded region is on a baffle plate; and
- (b) said outer tube threaded region is on an exterior portion of said outer tube.

24. (Previously Presented) A liquid filter assembly according to claim 19 wherein:

- (a) said cartridge filter includes a cylinder of pleated filter media defining an open filter interior;
  - (i) said center tube extending into said open filter interior.

25. (Previously canceled)

### REMARKS

In order to simplify the issues on appeal, Applicants are proposing to amend claim 19 to delete the language "single piece". In the Final Office Action, the Examiner indicated that, in his opinion, this language introduced new matter. While Applicants do not necessarily agree with the Examiner, in order to simplify the issues on appeal, Applicants have amended claim 19 to delete the language "single piece" from the claim.

Applicants request that this amendment be entered. This amendment should be entered because it will simplify the issues on appeal.

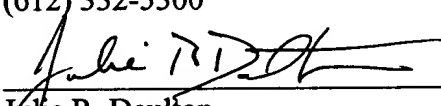
An Appeal Brief has been submitted concurrently herewith.

If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below listed telephone number.

Respectfully submitted,

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Date: 2 December 2003

  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,413	03/06/2001	John R. Hacker	758.924US01 ✓	2695

23552 7590 03/06/2003

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1723

DATE MAILED: 03/06/2003

FR 2md: May 6, 2003

FR 3/PTA: June 6, 2003 ✓

FR 6mo: Sept. 6, 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application N .	Applicant(s)	
	09/800,413	HACKER ET AL.	
	Examiner	Art Unit	
	Matthew O Savage	1723	

-- Th MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 December 2002.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 19-24 is/are pending in the application.
- 4a) Of the above claim(s) 22 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-21, and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No( ). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 1723

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19, 20, and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation of the spin-on filter and bowl cartridge filter including a single piece housing as recited in amended claim 19 is considered new matter.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Austrian Patent 236,421 in view of Mules and Gullett '636.

With respect to claim 19, '421 discloses a filter head 1 having a center tube (e.g., defining port 3) defining an end, an outer tube (e.g., carrying seal 16), a first liquid flow port 2, a second liquid flow port 3, the outer tube circumscribing the center tube, the

Art Unit: 1723

outer tube defining an end, an outer tube end port at the end at the end, an outer tube flow passageway extending between and in fluid communication with the first liquid flow port 2, the center tube defining a center tube flow passageway and a center tube end port, the center tube flow passageway extending between and in fluid communication with the second liquid flow port 3, the center tube projecting outwardly from the end of said outer tube, a bowl cartridge filter having a single piece housing 4 defining an interior and a cartridge filter 5 operably oriented within the housing interior, the cartridge filter including a region of filter media and a non-removable liner 9, the filter being in liquid flow communication with the outer tube end port and the center tube end port, a first seal arrangement 6 oriented to form a first seal to inhibit leakage between the outer tube flow passageway and the filter, and a second seal arrangement 15 oriented to form a second seal to inhibit leakage between the center tube flow passageway and the filter. '421 discloses a bayonet connection between an outer region of the outer tube and the filter but fails to specify the filter as having a threaded region 16 threadably engaged to an outer tube threaded region of the filter head. Mules discloses that a bayonet connection and a threaded connection between the outer surface of an outer tube of a filter head and the inner surface of filter are known alternatives (see lines 38-45 of col. 4). It would have been obvious to have modified the '421 filter so as to have included the threaded connection as suggested by Mules in order to provide a known alternative connection for the filter. '421 and Mules fail to specify the limitation of the threaded connection having a cross sectional thickness no greater than 10 mm. Gullett discloses an analogous filter housing having a threaded region 22 having a cross sectional

Art Unit: 1723

thickness no greater than 10 mm (see lines 12-17 of col. 4) and suggests that such a dimension provides the required strength for the threaded connection of an oil filter housing. It would have been obvious to have modified the combination suggested by '421 and Mules so as to have included a threaded region having a cross sectional thickness as suggested by Gullett in order to provide the required strength for the threaded connection of an oil filter housing.

Concerning claim 20, '421, Mules, and Gullett disclose bowl-cartridge filters with reusable housings and replaceable cartridges.

As to claim 21, Mules discloses the filter threaded region as being on an interior portion of the housing and the outer tube threaded region as being on an exterior portion of the outer tube (see lines 41-43 of col. 4).

Regarding claim 24, '421 discloses a cartridge filter including a cylinder of plated filter media (see line 4 of page 2) defining an open filter interior and the center tube 22 extending into the open interior.

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1723

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O Savage whose telephone number is 703-308-3854. The examiner can normally be reached on Monday-Friday, 6:00am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda W. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Application/Control Number: 09/800,413

Art Unit: 1723

Page 6

*M. Savage*  
Matthew O Savage  
Primary Examiner  
Art Unit 1723

mos

March 4, 2003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hacker et al.	Examiner:	M.O. Savage
Serial No.:	09/800,413	Group Art Unit:	1723
Filed:	03/06/2001	Docket No.:	758.924US01
Title:	LIQUID FILTER HAVING INTERCHANGEABLE SPIN-ON CANISTER FILTER AND CARTRIDGE FILTER, AND METHODS		

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on December 23, 2002."

By:   
Name: Sharon Trent

AMENDMENT AND RESPONSE

Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

In response to the Office Action mailed September 24, 2002, Applicants amend this application as follows:

In The Claims:

Please cancel claim 25. Please amend claim 19 as follows:

19. (Amended) A liquid filter assembly comprising:
- (a) a filter head; said filter head having a center tube, an outer tube, a first liquid flow port, and a second liquid flow port; said outer tube circumscribing said center tube;
    - (i) said outer tube defining an end, an outer tube end port at said end, and an outer tube flow passageway extending between and in fluid communication with said first liquid flow port and said outer tube end port;
      - (A) said outer tube further including an outer tube threaded region;



- (ii) said center tube defining a center tube flow passageway and a center tube end port; said center tube flow passageway extending between and in fluid communication with said center tube end port and said second liquid flow port;
        - (A) said center tube projecting outwardly from said end of said outer tube;
    - (b) one of a spin-on canister filter and a bowl-cartridge filter operably connected to said filter head; said filter head being capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter; said one having a single piece housing defining an interior and a cartridge filter operably oriented within said housing interior; said cartridge filter including a region of filter media and a non-removable inner liner;
      - (i) said filter having a filter threaded region threadably engaged to said outer tube threaded region to define a threaded connection;
        - (A) said threaded connection having a cross-sectional thickness no greater than 10 mm;
      - (ii) said filter being in liquid flow communication with said outer tube end port and said center tube end port;
    - (c) a first seal arrangement; said first seal arrangement oriented to form a first seal to inhibit leakage between said outer tube flow passageway and said filter; and
    - (d) a second seal arrangement; said second seal arrangement oriented to form a second seal to inhibit leakage between said center tube flow passageway and said filter.
20. A liquid filter assembly according to claim 19 wherein:
- (a) said filter comprises a bowl-cartridge filter;
    - (i) said housing being re-usable; and
    - (ii) said cartridge filter being selectively replaceable within said housing.
21. A liquid filter assembly according to claim 19 wherein:
- (a) said filter threaded region is on an interior portion of said housing; and
  - (b) said outer tube threaded region is on an exterior portion of said outer tube.

22. A liquid filter assembly according to claim 19 wherein:
- (a) said filter comprises a spin-on canister filter;
    - (i) said housing being single-use; and
    - (ii) said cartridge filter being permanently, and non-replaceably mounted within said housing.
23. A liquid filter assembly according to claim 22 wherein:
- (a) said filter threaded region is on a baffle plate; and
  - (b) said outer tube threaded region is on an exterior portion of said outer tube.
24. A liquid filter assembly according to claim 19 wherein:
- (a) said cartridge filter includes a cylinder of pleated filter media defining an open filter interior;
    - (i) said center tube extending into said open filter interior.

## REMARKS

Claims 19 - 24 are pending. Claims 22 and 23 are withdrawn until the independent claim is indicated as containing allowable subject matter.

In the Office Action, the Examiner rejected claims 19 - 21, 24, and 25 as unpatentable under 35 U.S.C. § 103 over U.S. Patent No. 5,984,109 to Kanwar et al. and U.S. Patent No. 5,695,636 to Gullett. Applicants have amended claim 19 and canceled claim 25 to more clearly define the invention. For at least the following reasons, Applicants respectfully submit that the application, as amended, is in condition for allowance.

Applicants' invention is the combination of a filter head and a filter. The combination allows for the use of both a spin-on canister filter and a bowl-cartridge filter to be used interchangeably upon the same filter head. This type of interchangeability can be done without the use of any special tools or adaptor structure. The concept of being able to use both types of filters on the same filter head, and without the use of any adaptor rings or other types of structure, is not disclosed or suggested in the prior art.

Attention is directed to Applicants' Figures 1 - 4. FIGS. 1 and 2 show the use of a liquid filter assembly, in which a bowl-cartridge filter is operably connected to the filter head. FIGS. 3 and 4 show the same filter head depicted in FIGS. 1 and 2. In FIGS. 3 and 4, this same filter head is operably connected to a spin-on canister filter. Note the direct connection between the respective filters and the filter head. There is no special collar, adaptor, or other structure that is needed in order to interchange between the two types of filters onto the filter head. As can be appreciated, the filter head shown in FIGS. 1 and 2 is capable of receiving both types of filters -- a bowl-cartridge filter and a spin-on canister filter. This concept is not shown in the prior art of record.

Claim 19 is directed to a liquid filter assembly. Claim 19 has been amended in order to more closely capture the inventive concept. Note that the filter head is required to be capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter.

Further note that claim 19 requires the cartridge filter to include a region of filter media and a non-removable inner liner.

U.S. Patent No. 5,984,109 to Kanwar et al. lacks any teaching or suggestion of the invention of claim 19. The '109 patent shows only one type of filter being used with the filter head. There is absolutely no teaching or suggestion that the filter head shown in the '109 patent is capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter.

Further, the '109 patent lacks teaching or suggestion of the cartridge filter including a region of filter media and a non-removable inner liner. In the '109 patent, the inner liner structure is removably mounted to the filter head. It is not a part of the cartridge filter.

U.S. Patent No. 5,695,636 to Gullett does not help remedy the deficiencies of the '109 patent. Gullett '636 also does not teach or suggest a filter head that is capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter.

For at least these reasons, Applicants respectfully submit that claim 19 is allowable over the prior art of record. Claims 20 - 24 depend upon and further limit claim 19. It is respectfully submitted that each of these claims is also allowable for at least these same reasons.


In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants request reconsideration and a Notice of Allowance.

If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below listed telephone number.

Respectfully submitted,

MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, Minnesota 55402-0903  
(612) 332-5300

Date: 23 December 2002

  
Julie R. Daulton  
Reg. No. 36,414  
JRD:st

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 19 has been amended as follows:

19. (Amended) A liquid filter assembly comprising:

- (a) a filter head; said filter head having a center tube, an outer tube, a first liquid flow port, and a second liquid flow port; said outer tube circumscribing said center tube;
  - (i) said outer tube defining an end, an outer tube end port at said end, and an outer tube flow passageway extending between and in fluid communication with said first liquid flow port and said outer tube end port;
    - (A) said outer tube further including an outer tube threaded region;
  - (ii) said center tube defining a center tube flow passageway and a center tube end port; said center tube flow passageway extending between and in fluid communication with said center tube end port and said second liquid flow port;
    - (A) said center tube projecting outwardly from said end of said outer tube;
- (b) [a filter operably connected to said filter head; said filter having a housing defining an interior and a cartridge filter operably oriented within said housing interior;]  
one of a spin-on canister filter and a bowl-cartridge filter operably connected to said filter head; said filter head being capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter; said one having a single piece housing defining an interior and a cartridge filter operably oriented within said housing interior; said cartridge filter including a region of filter media and a non-removable inner liner;
  - (i) said filter having a filter threaded region threadably engaged to said outer tube threaded region to define a threaded connection;
    - (A) said threaded connection having a cross-sectional thickness no greater than 10 mm;

- (ii) said filter being in liquid flow communication with said outer tube end port and said center tube end port;
- (c) a first seal arrangement; said first seal arrangement oriented to form a first seal to inhibit leakage between said outer tube flow passageway and said filter; and
- (d) a second seal arrangement; said second seal arrangement oriented to form a second seal to inhibit leakage between said center tube flow passageway and said filter.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,413	03/06/2001	John R. Hacker	758.924US01 ✓	2695

23552 7590 09/24/2002

MERCHANT & GOULD PC RAH  
P.O. BOX 2903  
MINNEAPOLIS, MN 55402-0903

EXAMINER

SAVAGE, MATTHEW O

ART UNIT PAPER NUMBER

1723

DATE MAILED: 09/24/2002

Resp. 3/PTA : Dec. 24, 2002

Resp. STAT : Mar. 24, 2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/800,413

Applicant(s)

HACKER ET AL.

Examiner

Matthew O Savage

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 June 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 19-25 is/are pending in the application.
- 4a) Of the above claim(s) 22 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-21, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No( ). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No( ) 2.                      6) ☐ Other: \_\_\_\_\_



Applicant's election with traverse of species 1 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that it would not impose a burden upon the examiner to examine all the disclosed species in a single application. This is not found persuasive because examination of ten patently distinct apparatus species would impose an undue burden upon the examiner.

The requirement is still deemed proper and is therefore made FINAL.

New claims 22 and 23 have been withdrawn as being directed to a non-elected invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-21, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanwar in view of Gullett '636.

With respect to claim 19, Kanwar discloses a filter head 12 having a center tube 19, 22 defining an end, an outer tube 17, a first liquid flow port 70, a second liquid flow port 78, the outer tube circumscribing the center tube, the outer tube defining an end, an outer tube end port at the end (e.g., defined by part 22) at the end, an outer tube flow passageway 72 extending between and in fluid communication with the first liquid flow port 70 and the tube outer end, the outer tube defining an end, and outer tube

Art Unit: 1723

end port, the outer tube further including an outer tube threaded region, the center tube defining a center tube flow passageway and a center tube end port, the center tube flow passageway extending between and in fluid communication with the second liquid flow port 78, the center tube 19, 22 projecting outwardly from the end of said outer tube, a filter operatively connected to the filter head, the filter having a housing 14 defining an interior and a cartridge filter 40 operatively oriented within the housing interior, the tube the filter having a threaded region 16 threadably engaged to the outer tube threaded region to define a threaded connection, the filter being in liquid flow communication with the outer tube end port and the center tube end port, a first seal arrangement 15 oriented to form a first seal to inhibit leakage between the outer tube flow passageway and the filter, and a second seal arrangement 34 oriented to form a second seal to inhibit leakage between the center tube flow passageway and the filter. Kanwar fails to specify the limitation of the threaded connection having a cross sectional thickness no greater than 10 mm. Gullett discloses an analogous filter housing having a threaded region 22 having a cross sectional thickness no greater than 10 mm (see lines 12-17 of col. 4) and suggests that such a dimension provides the required strength for the threaded connection of an oil filter housing. It would have been obvious to have modified the apparatus of Kanwar so as to have included a threaded region having a cross sectional thickness as suggested by Gullett in order to provide the required strength for the threaded connection of an oil filter housing.

Concerning claim 20, Kanwar and Gullett disclose bowl-cartridge filters with reusable housings and replaceable cartridges.

As to claim 21, Kanwar discloses the filter threaded region as being on an interior portion of the housing and the outer tube threaded region as being on an exterior portion of the outer tube.

Regarding claim 24, Kanwar discloses a cartridge filter including a cylinder of plated filter media (see lines 41-44 of col. 3) defining an open filter interior and the center tube 22 extending into the open interior.

Concerning claim 25, Kanwar discloses the filter cartridge as including an inner liner 24.

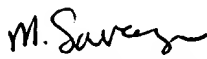
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O Savage whose telephone number is 703-308-3854. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

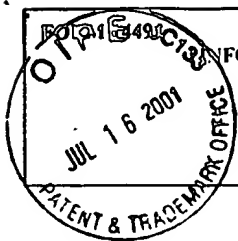
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda W. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Art Unit: 1723

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
Matthew O Savage  
Primary Examiner  
Art Unit 1723

mos  
September 20, 2002



INFORMATION DISCLOSURE STATEMENT

IN AN APPLICATION

(Use several sheets if necessary)

Docket Number:

758.924US01

Application Number:

09/800,413

Applicant: HACKER ET AL.

Filing Date: 03/06/2001

Group Art Unit: 1724

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
MS	4,832,844	05/23/1989	Ayers			
MS	5,104,537	04/14/1992	Stifelman et al.			
MS	5,342,519	08/30/1994	Friedmann et al.			
MS	5,476,585	12/19/1995	Mills			
MS	5,605,625	02/25/1997	Mills			
MS	5,681,461	10/28/1997	Gullett et al.			
MS	5,702,602	12/30/1997	Brown et al.			
MS	5,906,736	05/25/1999	Bounnakhom et al.			
MS	5,996,810	12/07/1999	Bounnakhom et al.			
MS	6,045,693	04/04/2000	Miller et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)




EXAMINER

M. Savage

DATE CONSIDERED

9-19-02

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.

FORM 1449\*

## INFORMATION DISCLOSURE STATEMENT

Docket Number:

758.924US01

Application Number:

09/800,483

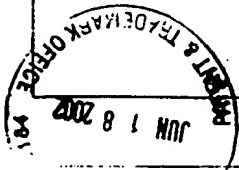
IN AN APPLICATION

(Use several sheets if necessary)

Applicant: Hacker et al.

Filing Date: 03/06/2001

Group Art Unit: 1723



## PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	TRANSLATION FILED DATE
ms	5,171,430	12/1992	Beach et al.	—	—	

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
ms	DE 40 36 191 A1	02/1992	DE	—	—		X
ms	0 589 377 A1	03/1994	EP	—	—		X
ms	0 702 144 A2	03/1996	EP	—	—		X
ms	0 783 913 A1	07/1997	EP	—	—		X

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)




23552

PATENT TRADEMARK OFFICE

EXAMINER M Savage

DATE CONSIDERED

9-19-02

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.

**Notice of References Cited**

Application/Control No.

09/800,413

Applicant(s)/Patent Under  
Reexamination  
HACKER ET AL

Examiner

Matthew O Savage

Art Unit

1723

Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,984,109	11-1999	Kanwar et al.	210/440
	B	US-5,695,636	12-1997	Gullett, David F.	210/232
	C	US-5,584,987	12-1996	Mules, Robert S.	210/130
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	DE 236421	10-1962	Germany	Alfred Knecht	210/444
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(e).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

S/N 09/800,413

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hacker et al.	Examiner:	M.O. Savage
Serial No.:	09/800,413	Group Art Unit:	1723
Filed:	03/06/2001	Docket No.:	758.924US01
Title:	LIQUID FILTER HAVING INTERCHANGEABLE SPIN-ON CANISTER FILTER AND CARTRIDGE FILTER, AND METHODS		

---

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on June 10, 2002.

By:   
Name: Sharon Trent

ELECTION AND PRELIMINARY AMENDMENT

Box: Amendment  
Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

In response to the election of species requirement mailed on March 13, 2002, the period for response having been extended for two months by the Petition For Extension of Time and Fee Payment filed concurrently herewith, Applicants respectfully respond as follows:

Election

Applicants elect species 1, FIGS. 1 and 2.

In The Claims

Please cancel claims 1-18, without prejudice. Please add new claims 21-25 as follows:

19. A liquid filter assembly comprising:
  - (a) a filter head; said filter head having a center tube, an outer tube, a first liquid flow port, and a second liquid flow port; said outer tube circumscribing said center tube;



- (i) said outer tube defining an end, an outer tube end port at said end, and an outer tube flow passageway extending between and in fluid communication with said first liquid flow port and said outer tube end port;
    - (A) said outer tube further including an outer tube threaded region;
  - (ii) said center tube defining a center tube flow passageway and a center tube end port; said center tube flow passageway extending between and in fluid communication with said center tube end port and said second liquid flow port;
    - (A) said center tube projecting outwardly from said end of said outer tube;
- (b) a filter operably connected to said filter head; said filter having a housing defining an interior and a cartridge filter operably oriented within said housing interior;
  - (i) said filter having a filter threaded region threadably engaged to said outer tube threaded region to define a threaded connection;
    - (A) said threaded connection having a cross-sectional thickness no greater than 10 mm;
  - (ii) said filter being in liquid flow communication with said outer tube end port and said center tube end port;
- (c) a first seal arrangement; said first seal arrangement oriented to form a first seal to inhibit leakage between said outer tube flow passageway and said filter; and
- (d) a second seal arrangement; said second seal arrangement oriented to form a second seal to inhibit leakage between said center tube flow passageway and said filter.

20. A liquid filter assembly according to claim 19 wherein:

- (a) said filter comprises a bowl-cartridge filter;
  - (i) said housing being re-usable; and
  - (ii) said cartridge filter being selectively replaceable within said housing.

21. (NEW) A liquid filter assembly according to claim 19 wherein:

- (a) said filter threaded region is on an interior portion of said housing; and
- (b) said outer tube threaded region is on an exterior portion of said outer tube.

22. (NEW) A liquid filter assembly according to claim 19 wherein:

- (a) said filter comprises a spin-on canister filter;
  - (i) said housing being single-use; and
  - (ii) said cartridge filter being permanently, and non-replaceably mounted within said housing.

23. (NEW) A liquid filter assembly according to claim 22 wherein:

- (a) said filter threaded region is on a baffle plate; and
- (b) said outer tube threaded region is on an exterior portion of said outer tube.

24. (NEW) A liquid filter assembly according to claim 19 wherein:

- (a) said cartridge filter includes a cylinder of pleated filter media defining an open filter interior;
  - (i) said center tube extending into said open filter interior.

25. (NEW) A liquid filter assembly according to claim 24 wherein:

- (a) said cartridge filter further includes an inner liner.

## REMARKS

Claims 19 - 25 are pending. Claims 1 - 18 have been canceled, without prejudice. Applicants respectfully reserve the right to pursue claims of the scope of claims 1 - 18 in further divisional or continuation applications.

The election of species requirement identified ten different species. Applicants contend that it would not have been unduly burdensome for the Patent Office to have examined these species together.

Applicants disagree with at least some of the identification of the claims with the species made by the Examiner. Even though Applicants believe that it would not be unduly burdensome for the Patent Office to have searched and examined all of the claims together, Applicants believe that there was at least some mismatch by the Examiner of the species with the claims. Applicants believe the correct match up is at follows:

Claim	Figures	Species
1	5 and 6 - 16	3 - 8
10	5, 6, and 9 - 12	3, 5, 6
17	7, 8, 13, and 14	4 and 7
19	1 - 6, 9 - 12, and 15 - 20	1 - 3, 5, 6, and 8 - 10
20	1, 2, 5, 6, 11, 12, 17, and 18	1, 3, 6, and 9
21	1 - 4, 11, and 12	1, 2, and 6
22	3, 4, 9, 10, 15, 16, 19, and 20	2, 5, 8, and 10
23	3, 4, 15, and 16	2 and 8
24	1 - 4, 5, 6, 9, 10, 11, 12, and 17 - 20	1 - 3, 5, 6, 9, and 10
25	1 - 6, 9 - 12, and 15 - 20	1 - 3, 5, 6, and 8 - 10

It is noted that claim 19 is generic to species 1 - 3, 5, 6, and 8 - 10. It is noted that even though the elected species, species 1, is part of claims 19, 20, 21, 24, and 25, claim 19 is generic to each of dependent claims 20 - 25. Thus, upon allowance of claim 19, it is respectfully requested that dependent claims 22 and 23 also be examined.


Applicants have included a Supplemental Information Disclosure Statement herewith. The Examiner is requested to consider the art cited in both the Information Disclosure Statement filed on June 16, 2001 and the Supplemental Information Disclosure Statement submitted herewith.

Applicants request consideration of the claims and a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below listed telephone number.

Respectfully submitted,

MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, Minnesota 55402-0903  
(612) 332-5300

Date: 10 June 2002

  
\_\_\_\_\_  
Julie R. Daulton  
Reg. No. 36,414  
JRD:st



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,413	03/06/2001	John R. Hacker	758.924US01	2695

23552 7590 03/13/2002

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P.O. BOX 2903  
MINNEAPOLIS, MN 55402-0903

RAH

EXAMINER

SAVAGE, MATTHEW O

ART UNIT PAPER NUMBER

1723

6

DATE MAILED: 03/13/2002

RESTRICTION REQUIREMENT  
FILE DIVISIONAL APPLN?

RR 1MO: Apr 13, 2002  
RR 3/PTA: June 13, 2002  
RR Resp Stat: Sept 13, 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/800,413

Applicant(s)

HACKER ET AL

Examiner

Matthew O Savage

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper N (s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

Art Unit: 1723

This application contains ten patently distinct species which correspond with the drawing Figures as follows:

<u>Species#</u>	<u>Figure#</u>
1	1-2
2	3-4
3	5-6
4	7-8
5	9-10
6	11-12
7	13-14
8	15-16
9	17-18
10	19-20.

This application contains claims directed to the following patentably distinct species of the claimed invention:

Claim 2 corresponds to species 1, 3, 6, and 9;

Claim 3 corresponds to species 3 and 9;

Claim 4 corresponds to species 1 and 6;

Claim 5 corresponds to species 3-8;

Claim 6 corresponds to species 4, 5, 7, and 8;

Claim 7 corresponds to species 4 and 7;

Claim 8 corresponds to species 5;

Claim 9 corresponds to species 8;

Claim 10 corresponds to species 3, 5, 6, and 8;

Claim 11 corresponds to species 3 and 6;

Claim 12 corresponds to species 3;

Art Unit: 1723

Claim 13 corresponds to species 6;

Claim 14 corresponds to species 5 and 8;

Claim 15 corresponds to species 5;

Claim 16 corresponds to species 8;

Claims 17 and 18 correspond to species 4 and 7;

Claim 19 corresponds to species 1-3, 5, 6, and 8-10;

Claim 20 corresponds to species 1, 3, 6, and 9.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record



Art Unit: 1723

showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O Savage whose telephone number is 703-308-3854. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda W. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3602 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Application/Control Number: 09/800,413

Page 5

Art Unit: 1723

  
Matthew O Savage  
Primary Examiner  
Art Unit 1723

mos

March 12, 2002

### **APPENDIX 3**

#### **REFERENCES RELIED UPON BY THE EXAMINER**

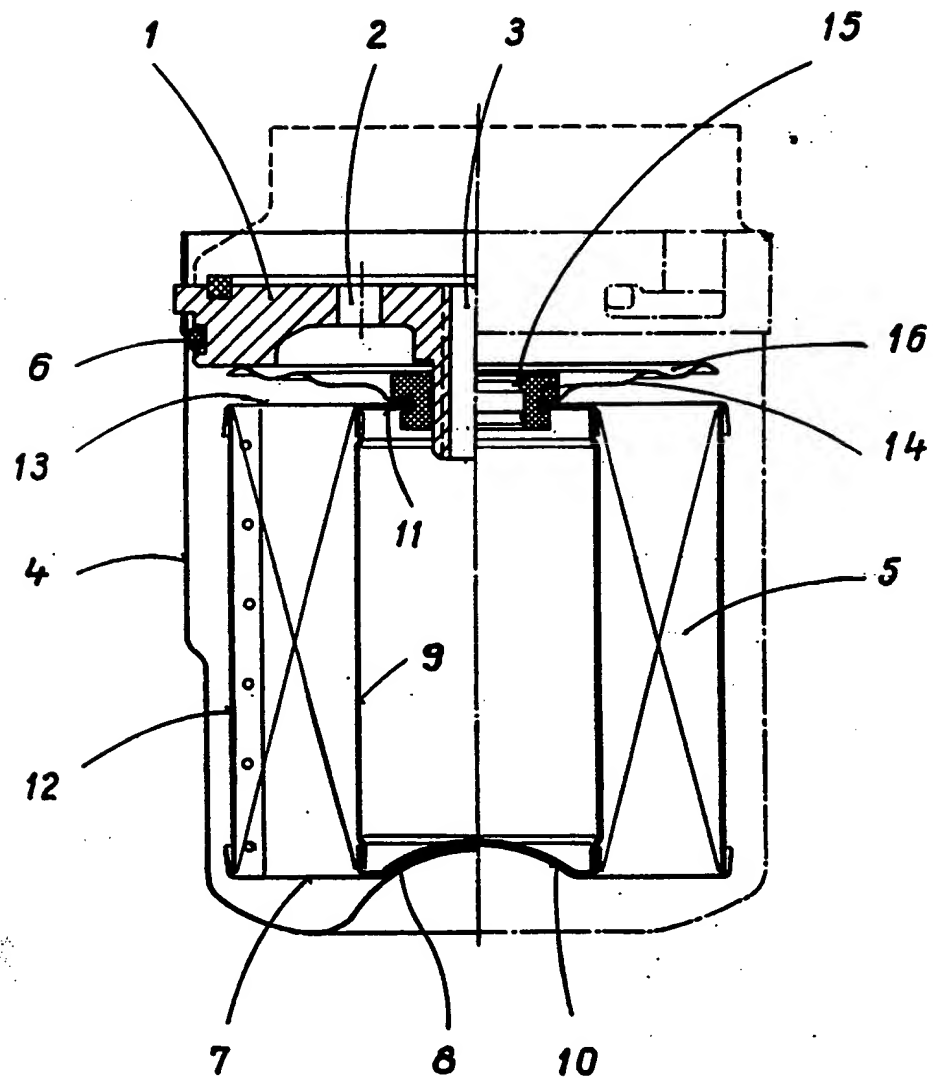
- A. Austrian Patent No. 236,421
- B. U.S. Patent No. 5,584,987 (Mules)
- C. U.S. Patent No. 5,695,636 (Gullett)

Österreichisches Patentamt  
Patentschrift

Nr. 236421

Kl. 12f, 17

1 Blatt





ÖSTERREICHISCHES PATENTAMT  
PATENTSCHRIFT NR. 236421

KL 12f, 17

Ausgegeben am 26. Oktober 1964

ALFRED KNECHT IN STUTTGART (DEUTSCHLAND)

In einen Flüssigkeitskreislauf einschaltbares Filter

Angemeldet am 23. Oktober 1962 (A 8335/62); Priorität der Anmeldung in Deutschland vom 2. Mai 1962 beansprucht.  
Beginn der Patendauer: 15. März 1964.

Die Erfindung betrifft ein in einen Flüssigkeitskreislauf, insbesondere einen Ölkreislauf einer Brennkraftmaschine, einschaltbares Filter mit einem austauschbaren Filtereinsatz, welches eine als Teil eines Rückschlagventils ausgebildete Membranringscheibe aufweist.

Die Membranringscheibe verhindert ein Abfließen des Öles aus dem Filtergehäuse bei stillstehendem 5 Kreislauf bzw. bei stillstehender Brennkraftmaschine.

Es ist schon vorgeschlagen worden, die Membranringscheibe auf den Filtereinsatz lose aufzusetzen. Eine derart angebrachte Scheibe kann jedoch beim Austausch des Filtereinsatzes leicht vergessen werden, und dann würde das Abfließen des Öles aus dem Filtergehäuse bei stillstehendem Kreislauf nicht mehr verhindert werden können. Deshalb hat man die Membranringscheibe mit der Abdeckscheibe des Filter- 10 einsatzes durch eine Bördelverbindung untrennbar verbunden, was jedoch voraussetzt, daß man nur eine metallische Abdeckscheibe für den Filtereinsatz vorsehen kann.

Die Erfindung hat eine vorteilhafte lösbare Verbindung der Membranringscheibe mit dem Filtereinsatz zum Ziel, so daß es jetzt auch möglich wird, die Membranringscheiben auch mit solchen Filterein- 15 sätzen zu verbinden, die nichtmetallische Abdeckscheiben aufweisen.

Das erfindungsgemäße Filter mit austauschbarem Filtereinsatz kennzeichnet sich dadurch, daß ein in der als Ringscheibe ausgebildeten Stirnseite sitzender, nachgiebiger Haltering als Befestigung der Mem- 20 branringscheibe dient.

In Ausgestaltung der Erfindung hat der nachgiebige Haltering etwa U-förmigen Querschnitt und ist zwecks Dichtung auf den am Kopfstück vorgesehenen, rohrförmigen Auslaßanschluß aufgeschoben.

Bei dieser Ausführungsform ist man von dem Werkstoff der Abdeckscheibe des Filtereinsatzes unab- 20 hängig, da diese entweder aus Metall, Pappe, Plastisol od. dgl. Material bestehen kann. Auch sind keine verformenden Nacharbeiten mehr notwendig, sondern der Haltering kann wegen seiner Nachgiebigkeit einfach in die Abdeckscheibe eingesetzt werden und hält die mit der Abdeckscheibe zu verbindende Membranringscheibe sicher fest.

Ein von der Filtereinheit abnehmbarer Haltering kann von einem verbrauchten Filtereinsatz zusam- 25 men mit der Membranringscheibe leicht abgenommen und auf einen neuen Austausch-Filtereinsatz aufgesteckt werden.

In Fällen, in denen jedoch Schäden, die bei fehlender Membranringscheibe auftreten könnten, den Wert einer Membranringscheibe und eines Halteringes weit übersteigen, kann es zweckmäßig sein, den 30 Filtereinsatz zusammen mit dem Haltering und der Membranringscheibe als nach dem Ausgebrauch wegzuwerfende Einheit auszubilden.

Eine bevorzugte Weiterbildung der Erfindung besteht darin, daß der nachgiebige Haltering im Quer- 35 schnitt gesehen etwa U-förmig ausgebildet ist und zugleich als Dichtungsring für den Auslaß des Filtereinsatzes dient. Der Haltering kann auf diese Weise zwei Funktionen ausüben und zur Verbilligung des Filters wesentlich beitragen.

In der Zeichnung ist ein Ausführungsbeispiel des Gegenstandes der Erfindung schematisch darge- stellt.

Am Motorblock einer nicht dargestellten Brennkraftmaschine ist ein Kopfstück 1 befestigt, das einen

Schmierölzulauf 2 und einen Schmierölablauf 3 aufweist. Das Kopfstück 1 dient zum Befestigen eines einen Filtereinsatz 5 aufnehmenden Gehäuses 4, was beispielsweise mit Hilfe eines Bajonettverschlusses geschehen kann. Zwischen dem Kopfstück 1 und dem Gehäuse 4 ist ein Dichtungsring 6 eingefügt.

Der Filtereinsatz 5 ist als sternförmig gefalteter Papierfilter ausgebildet. Er weist an seiner Unterseite eine volle Abdeckscheibe 7 auf, welche eine kugelabschnittförmige Einbuchtung 8 hat, die einer Einbuchtung im Gehäuse 4 angepaßt ist. Die Abdeckscheibe 7 ist durch eine an einer inneren Zarge 9 angebrachte und nach innen gewölbte Scheibe 10 unterstützt.

An der inneren Zarge 9 ist eine obere, eine Mittenbohrung aufweisende Scheibe 11 befestigt, gegen die eine mit einer äußeren Zarge 12 verbundene Abdeckringscheibe 13 anliegt, deren Mittenbohrung der Mittenbohrung der Scheibe 11 entspricht.

In die Mittenbohrungen der Ringscheiben 11 und 13 ist ein Haltering 14 aus einem nachgiebigen Werkstoff, insbesondere Gummi oder einem gummiähnlichen Kunststoff, eingesetzt. Der Haltering 14 ist im Querschnitt gesehen U-förmig ausgebildet und weist an seiner Innenwandung zwei Wülste 15 auf, welche abdichtend an dem durch den Haltering 14 hindurchragenden mittleren Rohransatz des Kopfstückes 1 anliegen. Der Haltering 14 nimmt in seiner äußeren Ringnut die beiden Ringscheiben 11 und 13 sowie eine Membranringscheibe 16 auf, die sich im eingebauten Zustand federnd gegen die Stirnfläche des Kopfstückes 1 abstützt und mit diesem zusammen ein den Schmierölrücklauf bei Motorstillstand verhinderndes Rückschlagventil bildet.

Zum Ausbau des Filtereinsatzes 5 wird das Gehäuse 4 vom Kopfstück 1 abgenommen, und durch Abziehen des Filtereinsatzes 5 wird der Haltering 14 von dem mittleren Rohransatz des Kopfstückes 1 getrennt. Durch Aufschieben eines neuen, mit einem Haltering 14 und einer Membranringscheibe 16 versehenen Filtereinsatzes 5 auf den Rohransatz und nach Aufsetzen des Gehäuses 4 auf das Kopfstück 1 ist das Filter wieder betriebsbereit.

Da der Haltering 14 von den Ringscheiben 11 und 13 zusammen mit der Membranscheibe 16 abnehmbar ist, kann er zusammen mit der Membranringscheibe 16 auf einen neuen Filtereinsatz aufgesetzt werden, der als Ersatz für den unwirksam gewordenen Filtereinsatz dient.

#### PATENTANSPRÜCHE:

1. In einen Flüssigkeitskreislauf, insbesondere in einen Ölkreislauf einer Brennkraftmaschine, einschaltbares Filter mit einem austauschbaren Filtereinsatz, an dessen einer Stirnseite eine als Teil eines Rückschlagventiles ausgebildete Membranringscheibe angebracht ist, dadurch gekennzeichnet, daß ein in der als Ringscheibe (13) ausgebildeten Stirnseite sitzender, nachgiebiger Haltering (14) als Befestigung der Membranringscheibe (16) dient.

2. Filter nach Anspruch 1, dadurch gekennzeichnet, daß der nachgiebige Haltering (14) etwa U-förmigen Querschnitt besitzt und zwecks Dichtung auf den am Kopfstück (1) vorgesehenen, rohrförmigen Auslaßanschluß (3) aufgeschoben ist.

(Hiezu 1 Blatt Zeichnung)